CNS 5037
NEUROPHILOSOPHY

Day 3 - Emotion

Agenda for "Suffering" Day

- Mountain Meditation
- Review: Self-Assessment
- How Thinking Affects Feeling
  - Negativity Bias
  - 2nd Darts
  - The Development of Separation (Ego)
  - The Significance of the PFC
- How Feeling Affects Thinking
  - Emotions and Decision Making
  - Embodied Cognition
- A New Theory of Cognition: Dynamism

Self-Assessment of Day #2

1. Last week we watched a short video of a scientific experiment testing the idea of free will. Which of the following was not true of the experiment?

A. It showed a person trying to decide what pair of pants to wear.

B. It showed how a person's heart rate changes when they make a wrong decision.

C. It showed how a person's brain indicates a "choice" before the person is consciously aware of it.

D. It showed how we are definitely always conscious of the decisions we make.

2. Which of the following is/are NOT true of human perception?

A. We perceive reality exactly as *it is*.

B. Our experience of reality is influenced by our beliefs.

C. Our experience of reality is dependent on our past experience.

D. Our experience of reality is based on how our brain is wired.

3. Which of the following is true of human subjective experience?

A. We all have the same subjective experience.

B. There is no such thing.

C. We all have different subjective experiences.

D. Mine is better than yours.

Self-Assessment of Day #2

4. Which is/are the best description(s) of human thought processes as described in class?

A. We make snap judgments based off context.
B. We see the whole story before coming to a conclusion.
C. We impose meaning on the world.

5. What are some effects that arise due to our natural thinking processes.

A. We can come to quick solutions with little thought.
B. We can navigate through life efficiently.
C. We are prone to poor assumptions and incorrect conclusions.

6. There seems to be evidence that points to our innate ability to change our thinking processes and the contents of our thoughts.

a. True
b. False

Question to File Away in the Unconscious

1. *What is the relationship between feeling & thinking; emotion vs. reason?*
2. *Can we control our emotion?*
3. *Is "thinking" always rational and "feeling" always irrational?*

#1. How We Think Affects How we Feel

Survival Strategies & Suffering

1. Maintaining Stability
2. Avoid Threats & Approach Opportunities
3. Creating Separations

Our experience of the last two are dependent on our cognition (how we think and what we think about).

Survival Strategies & Suffering

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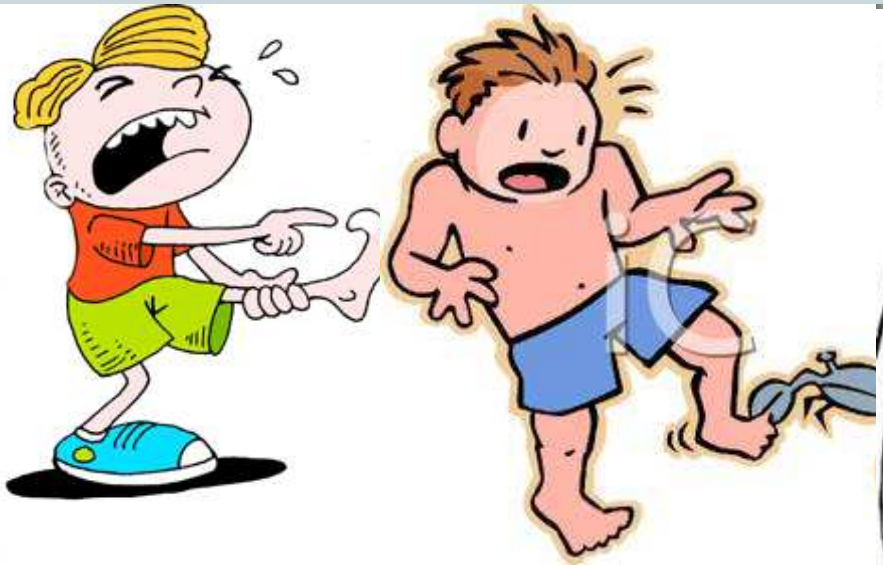
Avoid Threats & Approach Opportunities

When do you experience emotional suffering?

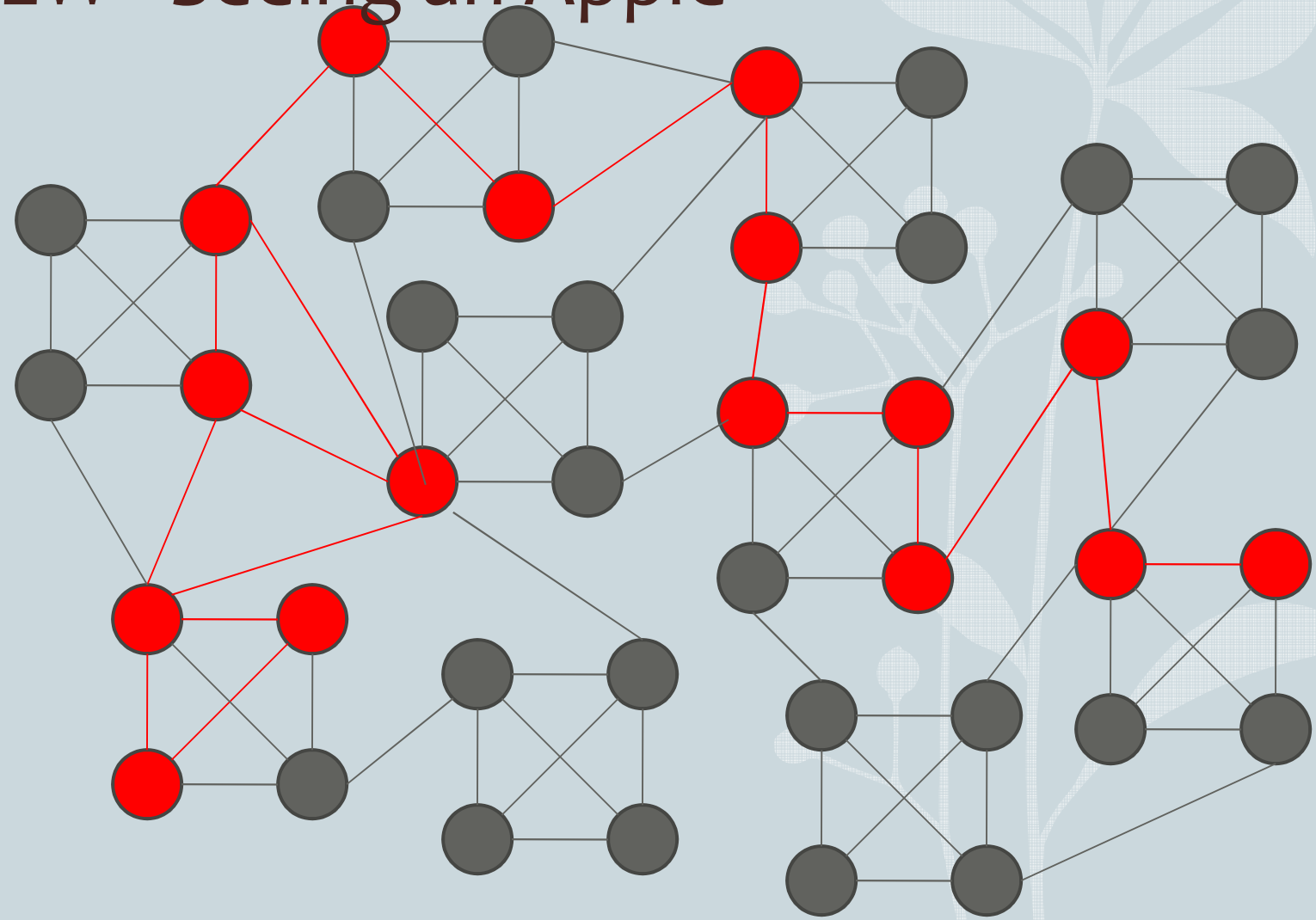
1. Unpleasant Conditions



2. Regardless of Conditions

REVIEW - Thinking about Thinking:
#1. Connectionism: Neural Networks

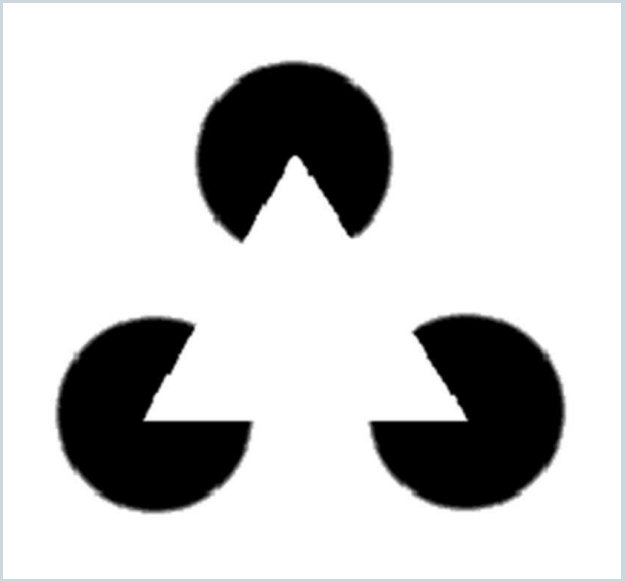
REVIEW - Seeing an Apple



REVIEW - Thinking about Thinking: #1. Connectionism: Neural Networks

Understanding/Thinking is Primarily

Habitual Pattern Recognition



Connectionist: *Don't need to activate entire network – just enough of it.*

REVIEW - Thinking about Thinking: #1. Connectionism: Neural Networks

Understanding / "Making Sense"

- Is not about *truth* or understanding how reality *really is*.
- "Understanding/making sense" = I found a way for info to fit within my pre-existing neural network (habitual pattern recognition – think about HW responses).
- We impose meaning on our reality based on **dominant networks**…
  - Beliefs, past experience, values, expectations, etc…

What's the problems with this (habitual pattern recognition)?

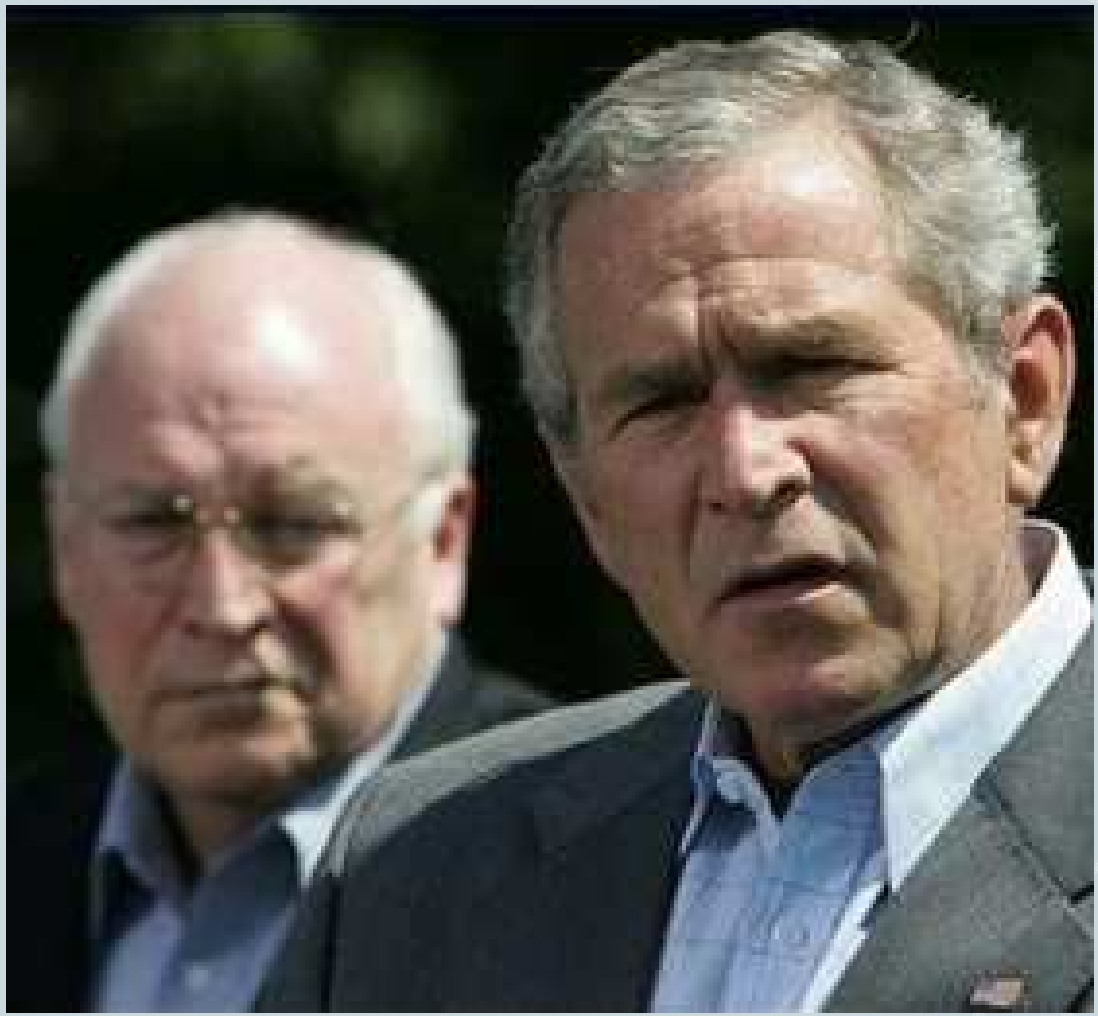
"Say … what's a mountain goat doing way up here in a cloud bank?"

It turns out we are very good at making one particular *type* of error.

Avoid Threats & Approach Opportunities

What dominant neural networks are triggered by the following images?


© AP




Notice of Termination
Sara A. Fields


OF FORECLOSURE
Legal Notice
are in default under a deed of Trust

Avoid Threats & Approach Opportunities

How is this related to sticks & carrots?

Avoid Threats & Approach Opportunities

The Negativity Bias

Remember:

*"We impose meaning on our reality based on **dominant networks**…*

Beliefs, past experience, values, expectations, etc…"

Our dominant networks are primed to "see" threats.

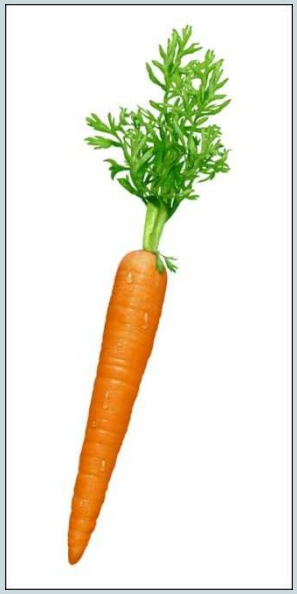
Avoid Threats & Approach Opportunities

Negativity Bias

Causes in Evolution

- "Sticks" - Predators, natural hazards, social aggression, pain
- "Carrots" - Food, sex, shelter, social support, pleasure

- During evolution, avoiding "sticks" usually had more effects on survival than approaching "carrots."



This mistake won't kill you.

This mistake will.

Avoid Threats & Approach Opportunities

Negativity Bias

Dark, thin, long, curved

?

=

Avoid Threats & Approach Opportunities

Negativity Bias

So What Are the Effects on Quality of Life?

Summary: Our initial appraisals are often mistaken by

- Overestimating threats
- Underestimating opportunities
- Underestimating inner and outer resources

1. Often hyper-vigilant = prone to (unconsciously) linger on possible problems.
2. Prone to (unconsciously) linger on past mistakes.

This evolutionary tendency is intensified by personal history, culture, and politics. How?

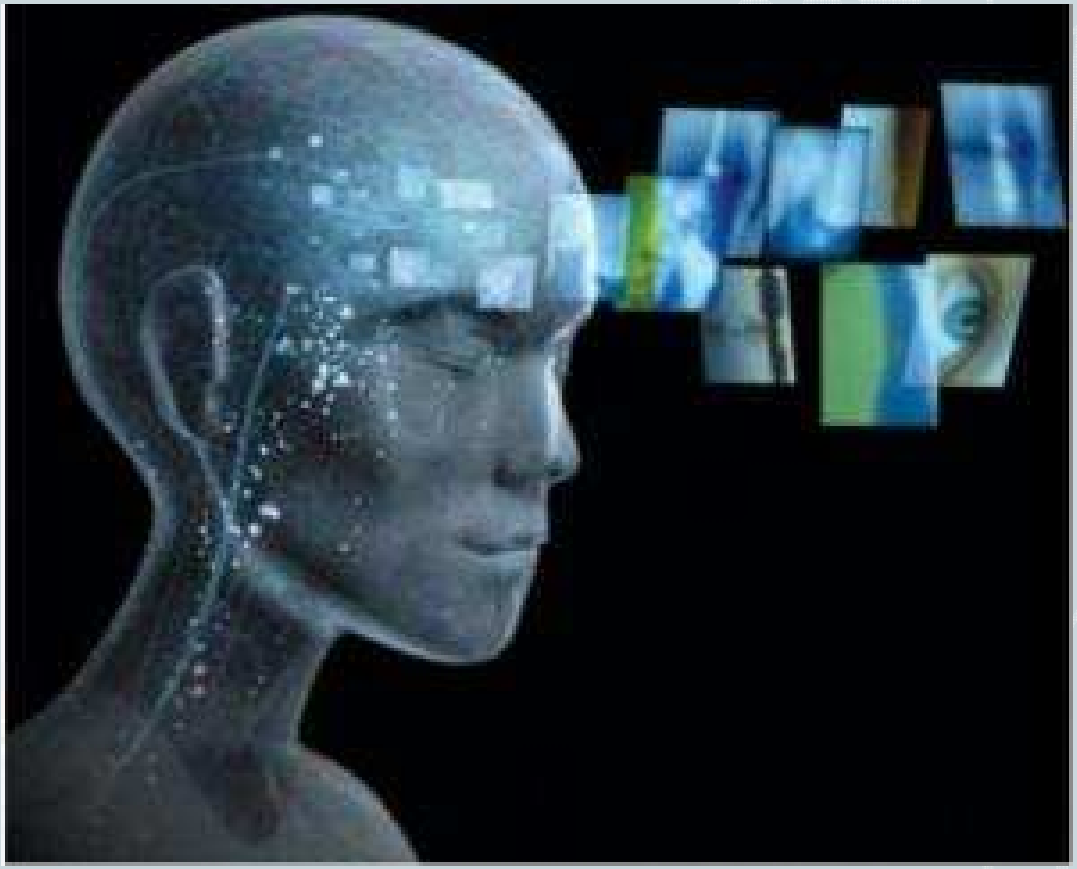
Marketers, politicians, family members, institutions…

Avoid Threats & Approach Opportunities

Negativity Bias

Plus the Prefrontal lobe is a Great Simulator!

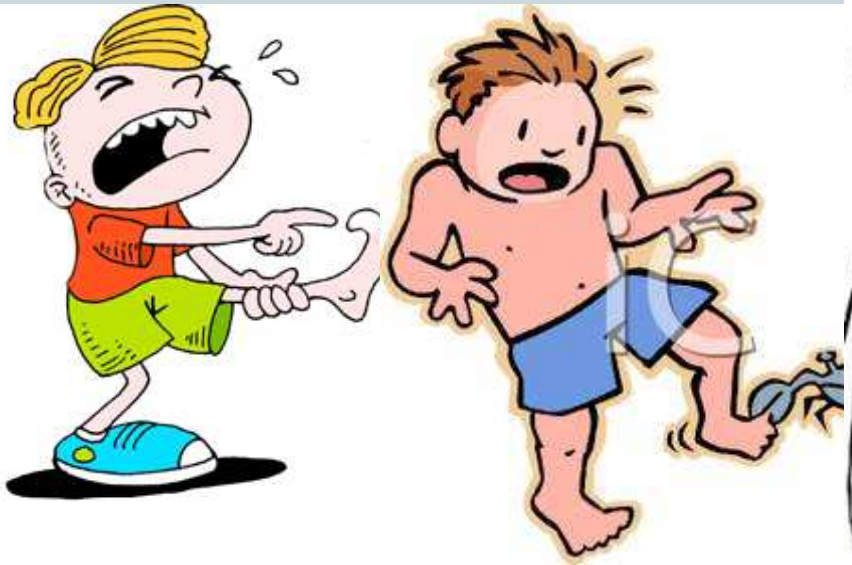
Negativity Bias + Simulation Machine = ☹



Avoid Threats & Approach Opportunities

When do you experience emotional suffering?

1. Unpleasant Conditions



2. Regardless of Conditions

Avoid Threats & Approach Opportunities

2nd Darts

1. Unpleasant Conditions

What are 2nd Darts?

And how is suffering from unpleasant conditions related to them?

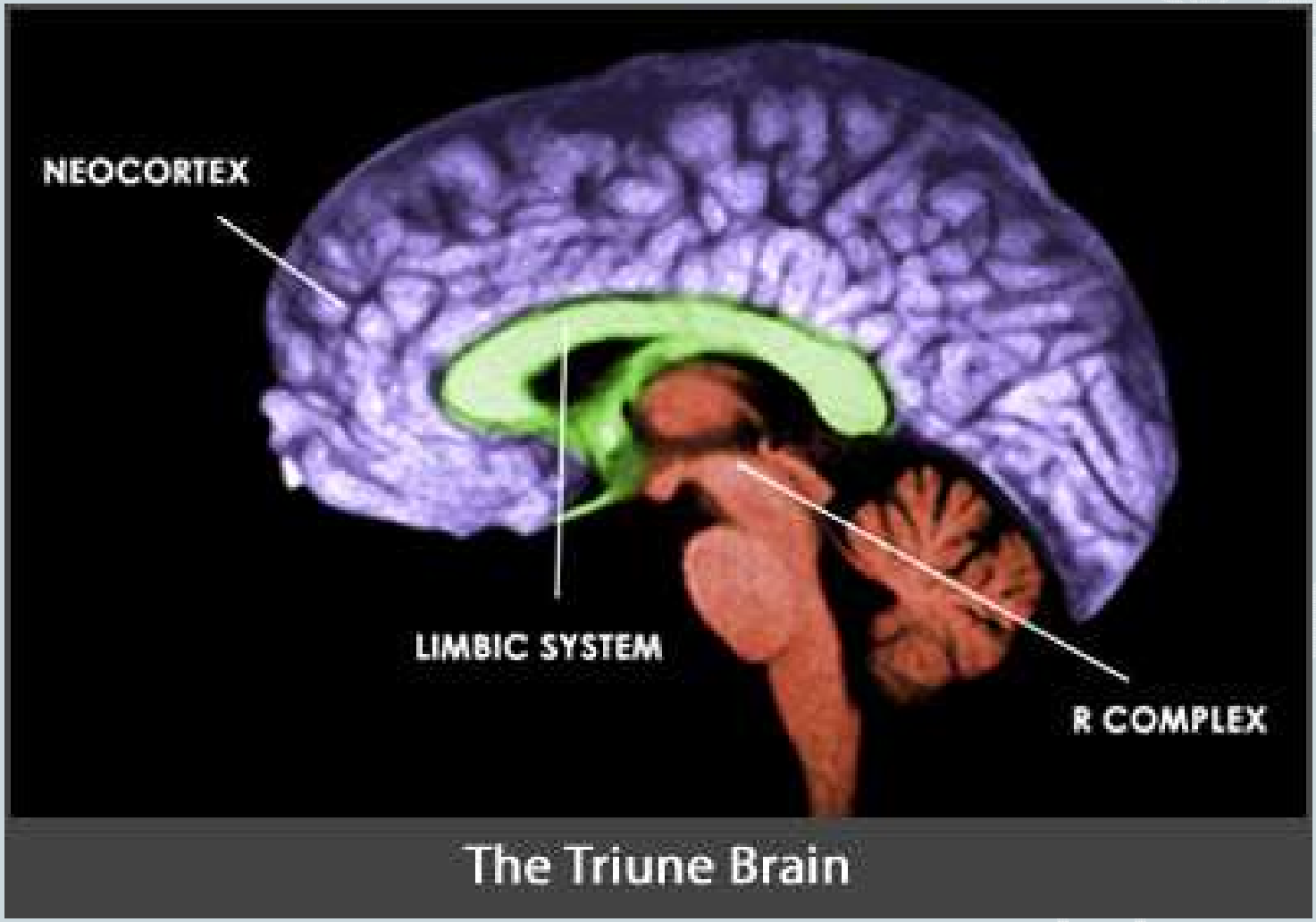
1. We experience the world with its first darts.
2. Negative emotions may then occur.
3. Then our dominant networks primed by our Negativity Bias, may get activated. And we may throw second darts, fanning the flames of our negative emotions.

Both #2 & #3 occur unconsciously, out of habit.

Are we just slaves to our unconscious, older brains?

Avoid Threats & Approach Opportunities

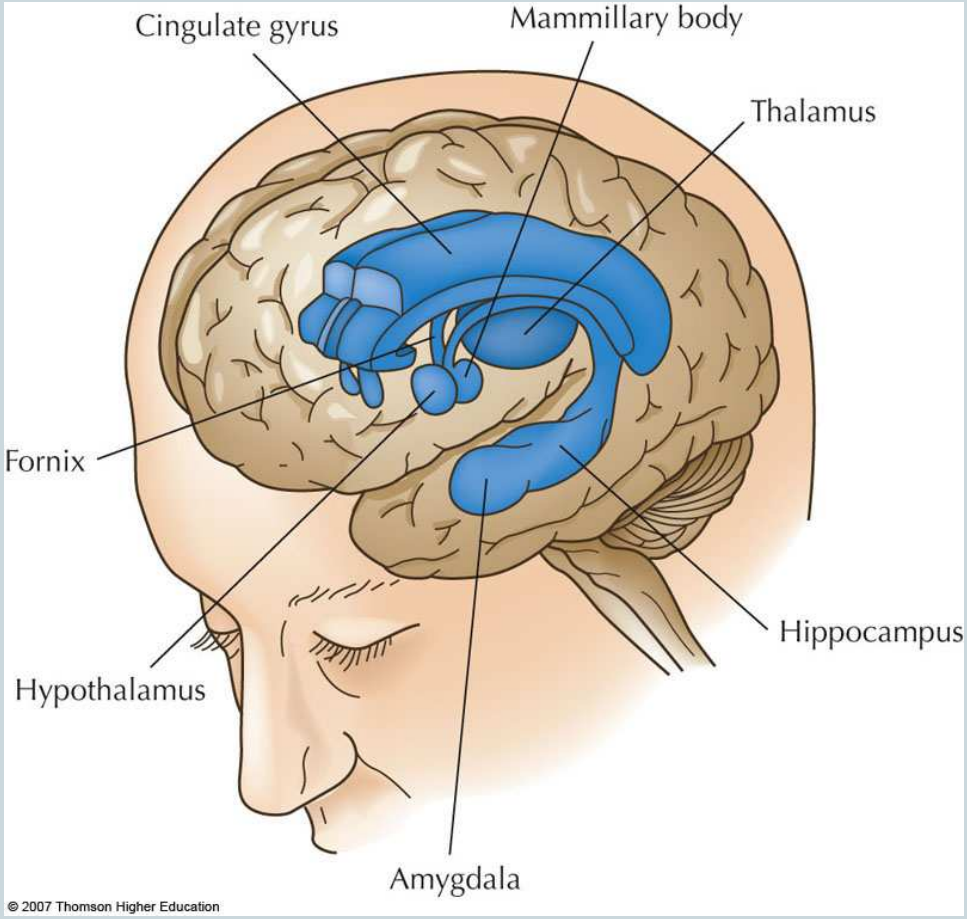
Triune Brain Revisited



The Triune Brain

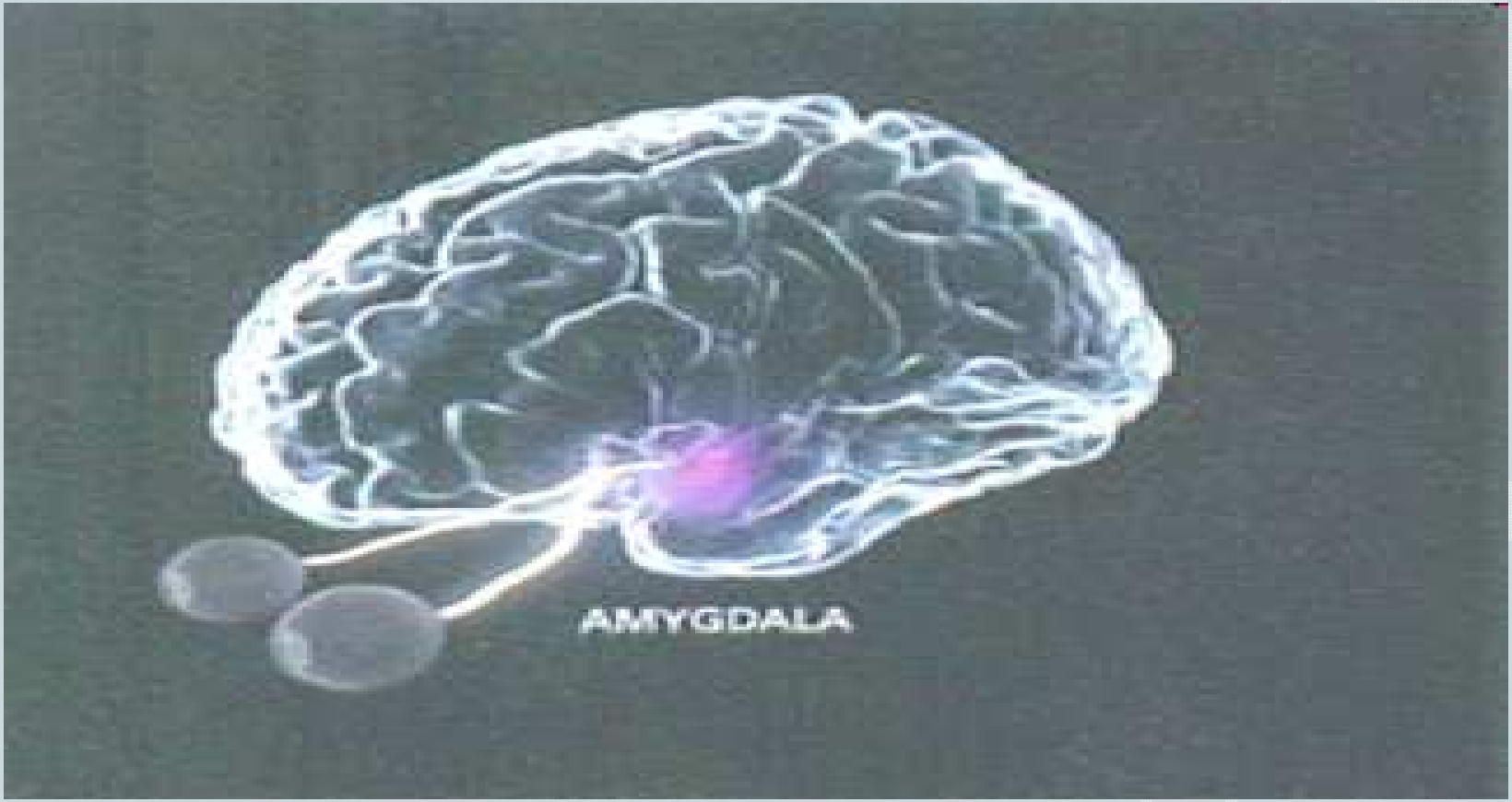
Avoid Threats & Approach Opportunities
Limbic System (subcortical)

- Thalamus:
  - sensory switchboard to cortex;
- Hypothalamus:
  - Regulates emotional behaviors and motives (e.g., sex, hunger, rage, hormone release)
- Hippocampus:
  - Critical for memory formation.
- Amygdala:
  - Determines if stimuli should be approached or feared



Avoid Threats & Approach Opportunities

Beware of Amygdala Hijacking!



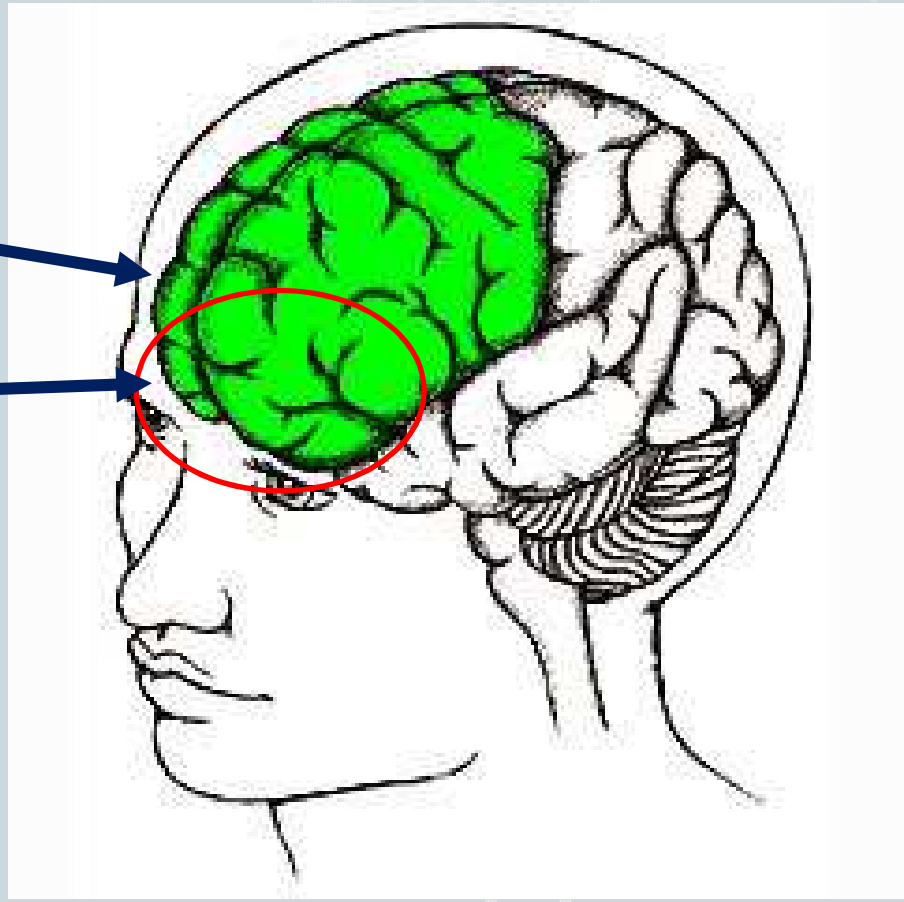
Avoid Threats & Approach Opportunities

Beyond Impulse: Prefrontal Cortex (PFC)

Need to exercise control over older, strong, emotional and instinctual brain of the subcortex.

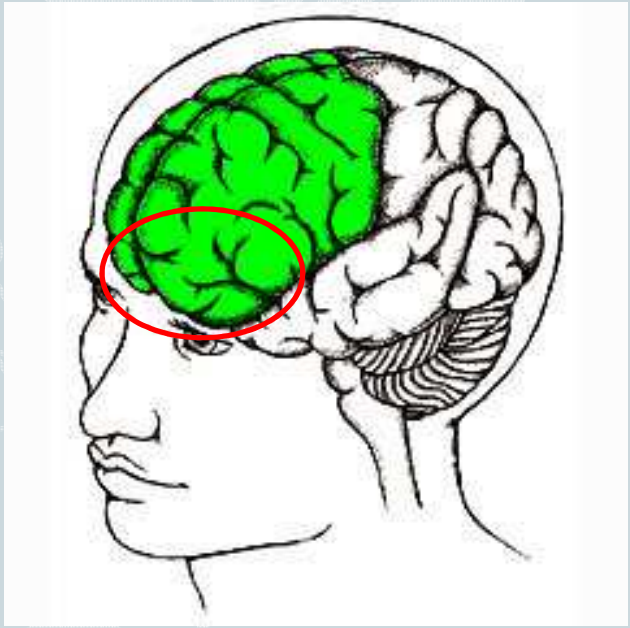
Sustained Attention
Self-Monitoring

Impulse Control
(behavioral inhibition)
Emotional Modulation



Avoid Threats & Approach Opportunities

Trapped in Feeling



Why can't we just "flip a switch"?

1. Particular Thoughts & Perceptions: *Neural Networks*

2. Feelings: *Chemicals*

Neurotransmitters – NV System

- Norepinephrine (alert)
  - Can make us feel frazzled; out of control.

Hormones – Endocrine System

- Epinephrine (alert)
- Cortisol (stimulates amygdala & inhibits hippocampus)

Avoid Threats & Approach Opportunities
Second Darts Exercise

Groups of 3-4:

- 1) Share some second darts you wrote about for this week.
- 2) Reflect and discuss neutral or more positive alternative thoughts and perceptions you could have chosen instead.

Three Survival Strategies (via Hanson)

1. Maintaining Stability
2. Avoid Threats & Approach Opportunities
   - Sticks & Carrots
3. Creating Separations

Our experience of the last two are dependent on our cognition (how we think and what we think about).

Creating Separation
Alan Watts

How does Alan Watts philosophically explain why we feel like skin-encapsulated egos?

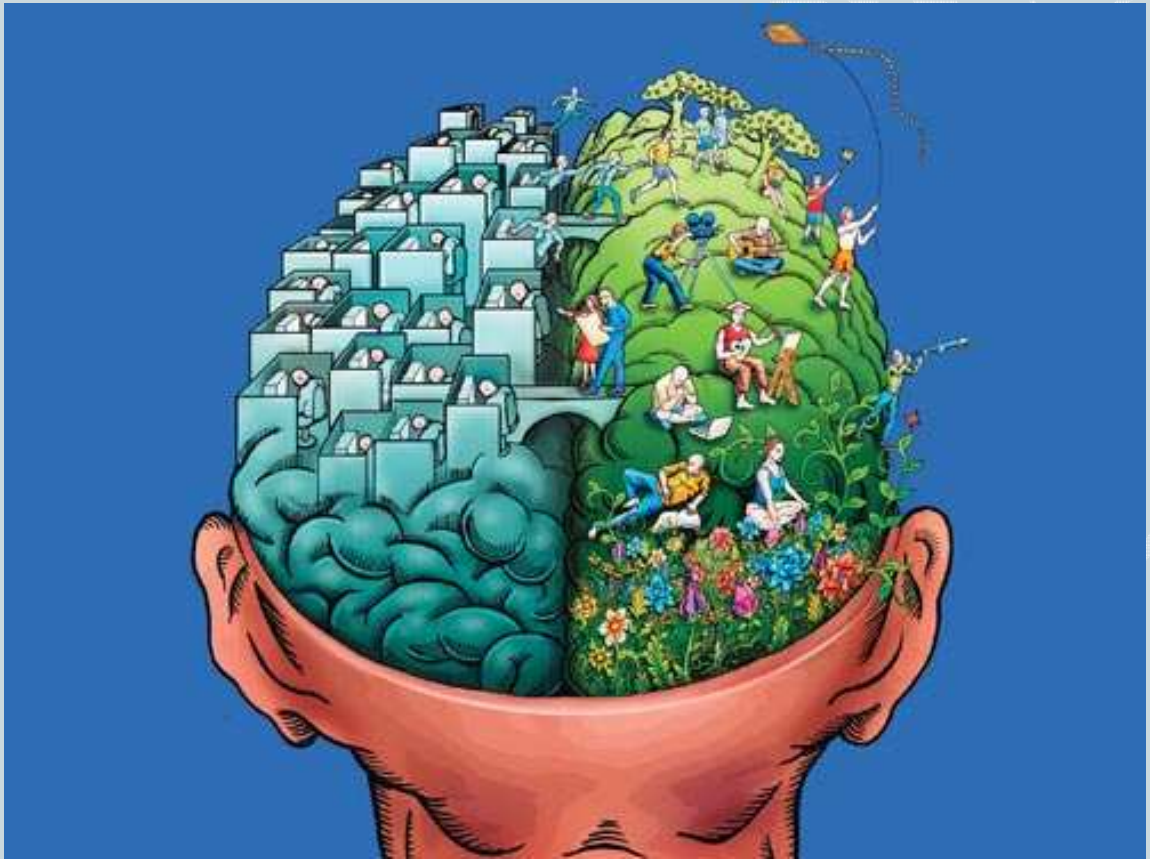
- One of the most important items in our officer's equipment is his recording and filing system—the memory which he constantly "consults" so as to know how to interpret and respond to his sensory input. Without this equipment, he could have no sensation of constancy—of being the same officer as he was seconds ago… It gives the impression of oneself, the officer, as something that remains while life goes by… (pg 2)

- The skin informs us just as much as it outforms; it is as much a bridge as a barrier. Nevertheless, it is our firm conviction that beyond this "wall of flesh" lies an alien world only slightly concerned with us. (pg 3)

"… our universe, including ourselves, is thoroughly wiggly… Are there 'things' that wiggle, or are the wigglings the same as the things?

It depends on how you figure it." (Pg 4)

A Little About the Brain Hemispheres



Creating Separation

Brain Hemisphere Questions to Begin

What does this have to do with the following ideas from Hanson and Watts?

Watts

- 1) Pg 4: "… our universe, including ourselves, is thoroughly wiggly… Are there 'things' that wiggle, or are the wigglings the same as the things? It depends on how you figure it."

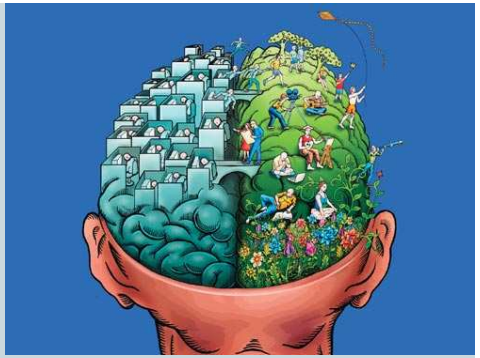
Hanson

- 1) Pg 14: "… what is perhaps the most seductive and subtle challenge to wisdom: the sense of being a self who is separate from and vulnerable to the world."

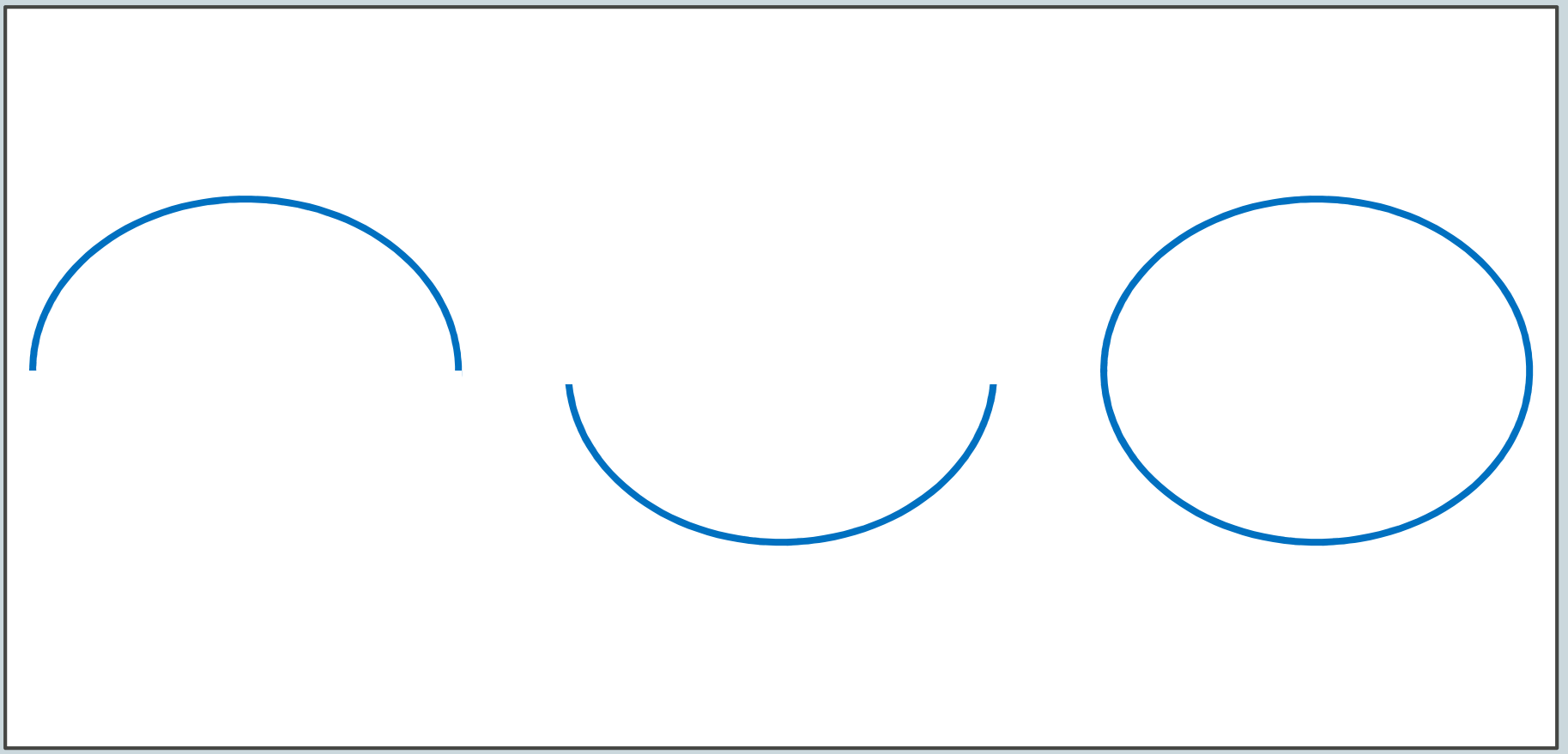
- 2) Pg 15: "… every religious tradition—all say essentially the same thing: your fundamental nature is pure, conscious, peaceful, radiant, loving, and wise, and it is joined in mysterious ways with the ultimate underpinnings of reality, by whatever name we give That."

Creating Separation

Right/Left Hemisphere Distinction



- What do you think this means?
- A person with right hemisphere damage has problems with these:



Creating Separation

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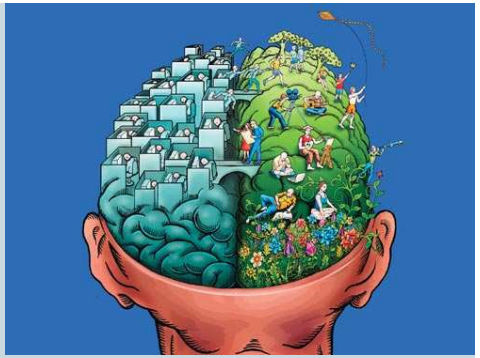

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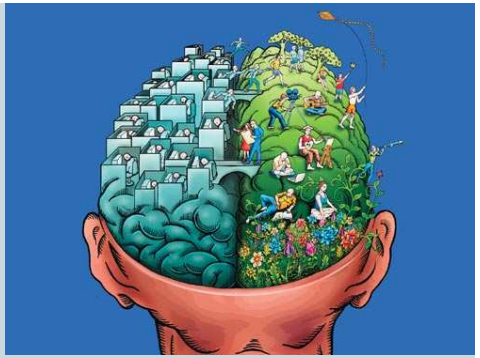
Creating Separation

Right/Left Hemisphere Distinction



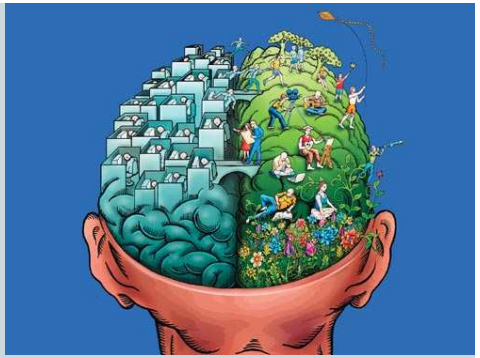
- What do you think this means?
- A person with right hemisphere damage has problems with these:

"Can you pass the salt shaker?

"Having a heavy heart."

Creating Separation

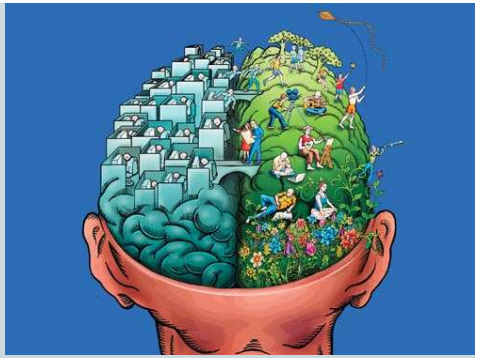
Right/Left Hemisphere Distinction



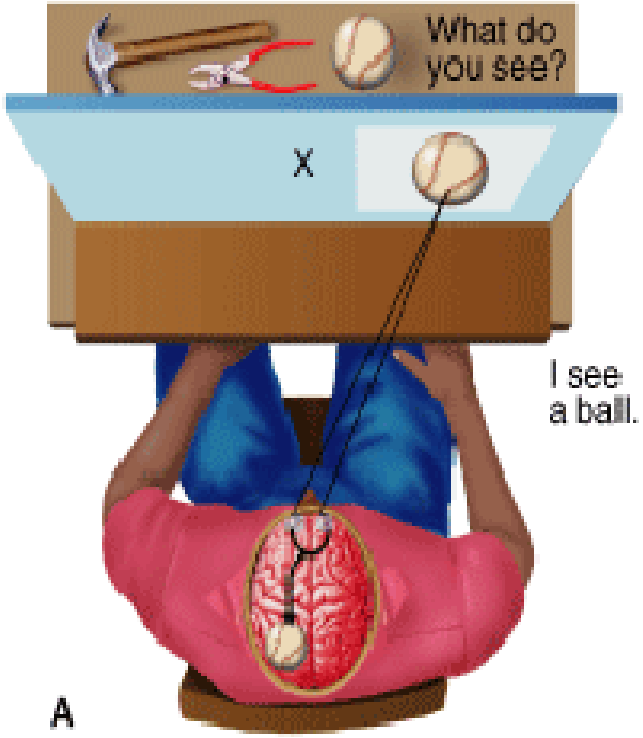
- What do you think this means?
- A person with right hemisphere damage has problems with these:

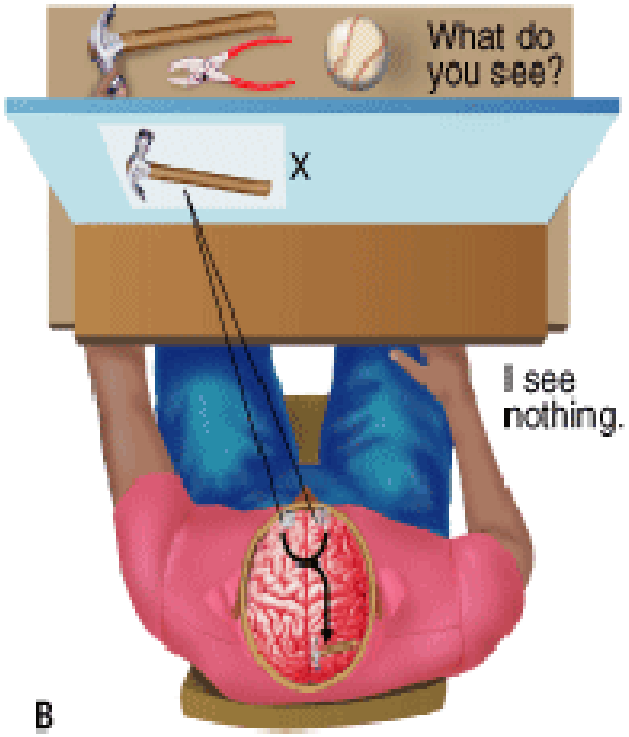
Creating Separation

Right/Left Hemisphere Distinction



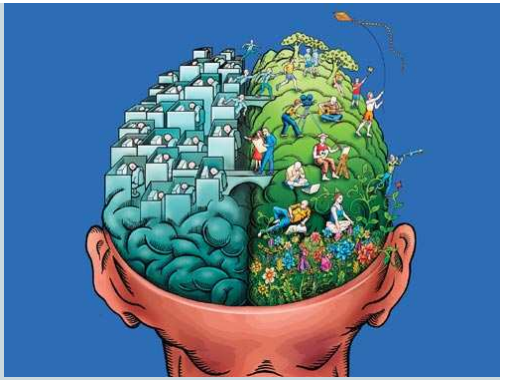
- What do you think this means?
- A split-brain patient displays this behavior:





1. Language primarily stored in LH
2. Learnt info often activates LH
3. Learning info RH active
4. Small shift from R to L as something is learned.

Creating Separation
Right/Left Hemisphere Distinction



Left Hemisphere – Literal

- Literal.
- One meanings/perspectives at a time.
- Discrete, parts
- Stores learned information.
- Using our skills.
- Less active when we are young, more active the older we get.

Right Hemisphere – Meaningful

- Figurative, Metaphorical
- Holds multiple meanings and multiple perspectives.
- Can image the whole.
- Critical for learning something new
- Learning our skills
- More active when we are young, less active as we get older.

Creating Separation

Brain Hemisphere Questions to Begin

What does this have to do with the following ideas from Hanson and Watts?

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- 1) Pg 4: "… our universe, including ourselves, is thoroughly wiggly… Are there 'things' that wiggle, or are the wigglings the same as the things? It depends on how you figure it."

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Creating Separation

Can you explain this experience?

https://www.youtube.com/watch?v=UyyjU8fzEYU

Thinking about Thinking:
#2. Right to Left Hemisphere Dominance

Thinking about Thinking:
#2. Right to Left Hemisphere Dominance

Thinking about Thinking:
#2. Right to Left Hemisphere Dominance

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#2. Right to Left Hemisphere Dominance

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Thinking about Thinking:
#2. Right to Left Hemisphere Dominance

Blurry to Fine Perception & Discrimination:
Development of the Ego?

Thinking about Thinking:
#2. Right to Left Hemisphere Dominance

Blurry to Fine Perception & Discrimination:
Spiritual/Religious Implications?

Nirvana & Brain Hemispheres

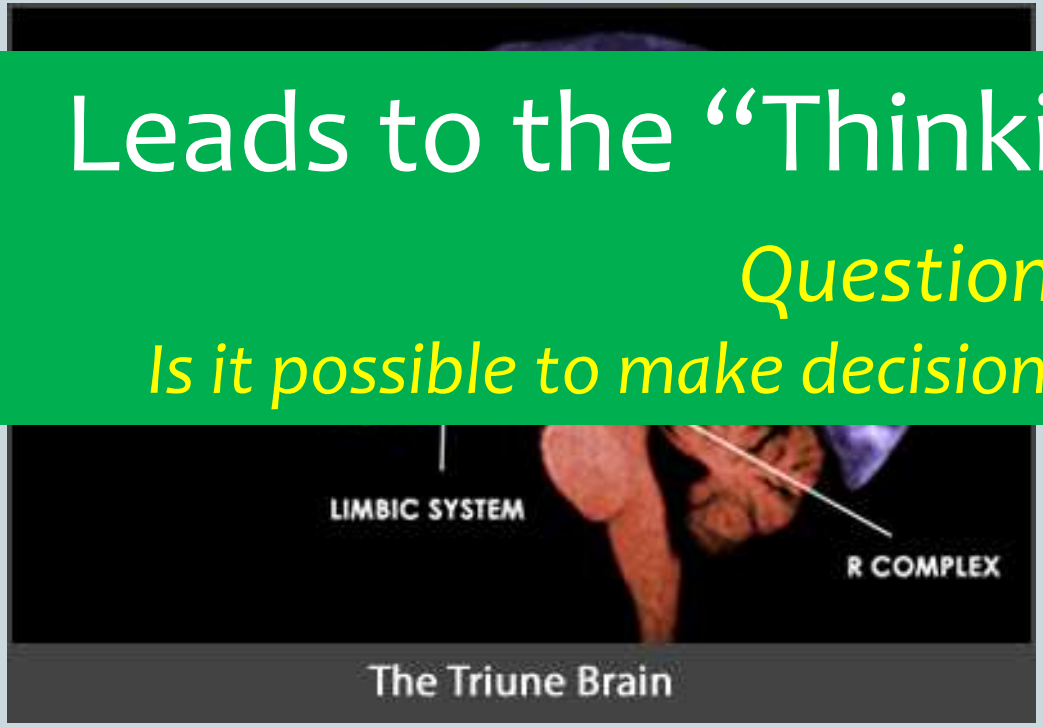
- Without the right hemisphere, no judgments, no conditioned narrative to perpetuate negative stories.
- Without the right hemisphere no separate story of “me” and “you” or “us” and them”
- But, without the right hemisphere no language, math, learned skills, fine perception, appreciation for differences, decisions may be difficult.

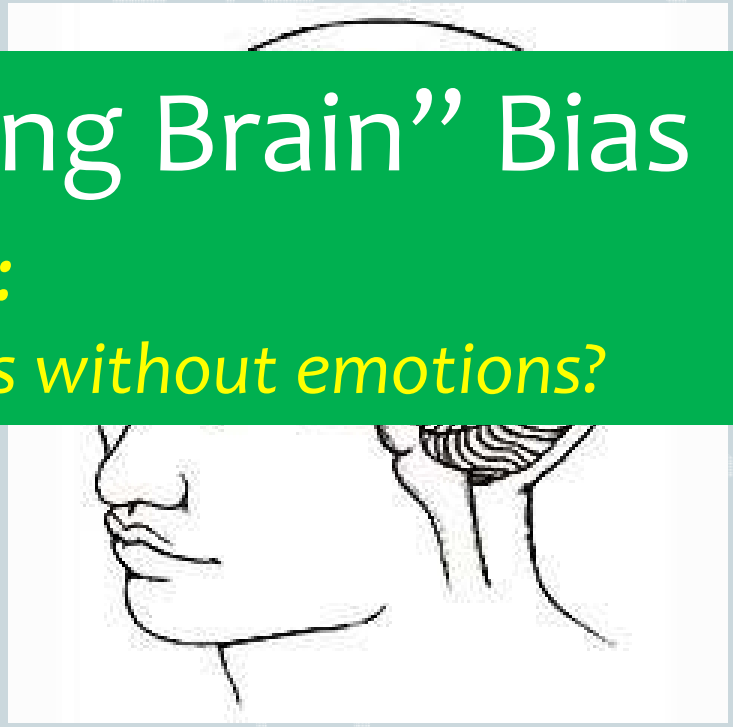
#1. How We Think Affects How we Feel

#2. How We Feel Affects How we Think

Valuing The "Newer" (Top) Brain

Planning. Organizing. Weighing pros & cons.
Attention regulation. Impulse control.





Leads to the "Thinking Brain" Bias

Question:

Is it possible to make decisions without emotions?

For good reason, many spiritual practices are about exercising our ability to overcome our subcortical impulses… Examples?

Thinking Beyond the Cerebral Cortex

Damasio: Iowa Gambling Task

Question:

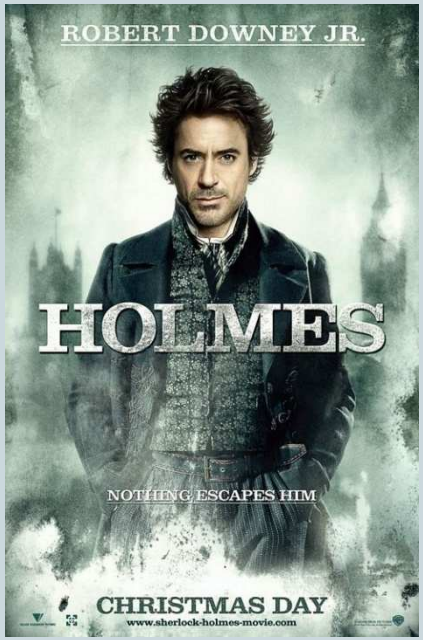
Is it possible to make decisions without emotions?

- Unconscious measurements show higher stress levels over "bad" decks after 10 trials.
- Person tends towards "good" decks after 40-50 trials, even though they have no conscious reasoning to do so.

Lakoff: Reasoning is Embodied

Why value reasoning over feeling?

- Reasoning:



If the murderer was female.
And if John is not a female.

Then John was not the murderer.

- "Reason" isn't disembodied, objective approach to truth.
- Our rationality is greatly influenced by our bodies in large part via an extensive system of metaphorical thought.

Lakoff: Reasoning is Embodied

Embodied Metaphors for Thinking (as movement):

- My mind is "wandering."
- How did you "reach that conclusion?"
- I'm "stuck" or "lost"
- I've "found" my answer

Embodied Metaphors for Thinking (as perceiving):

- I "see" what you are saying.
- New facts are "coming to light" regarding our situation.
- You'll "get the picture" sooner or later.

Question: Why is this important to notice?

- Because when we think with logic/reason, many assume we have direct path to truth.
- But our logic is an "embodied" logic based on our physical experience of the world.

Lakoff: Reasoning is Embodied

More Evidence from Studies

- Participants holding warm as opposed to cold cups of coffee were more likely to judge a person as trustworthy after only a brief interaction.

- Unfamiliar Currencies: Those who held heavier clipboards judged currencies to be more valuable.

Embodied Cognition & Implications

- Our logic is embodied: What may seem rationally possible or impossible, true or false, may be the result of a "embodied" metaphor for reality, not reality itself.

- When we want to "think" consciously, we often use words and embodied reason to think through a scenario.

- How is this a problem?

Here's one: Watts (pg 3)

"It is, then, as if the human race had hypnotized or talked itself into the hoax of egocentricity. There is no one to blame but ourselves."

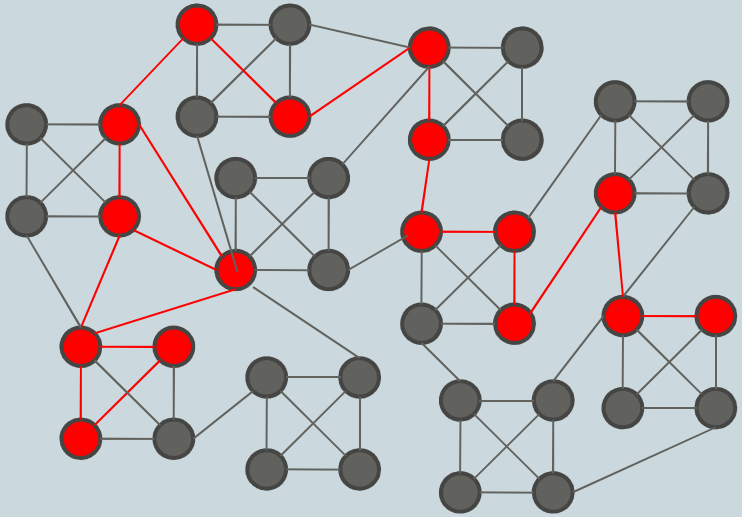
Embodied Cognition & Implications

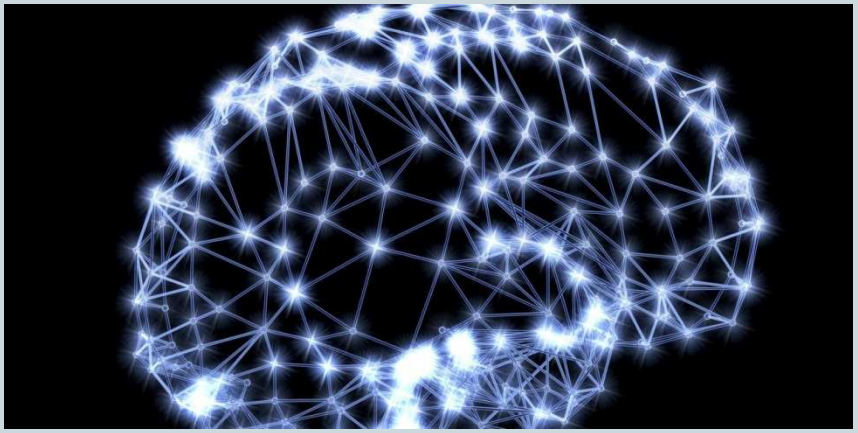
But if our words & reason are just fingers pointing to the moon, we must be aware of the limitations of thinking with our fingers.

Embodied Cognition & Implications

Cognition Revisited

1. Connectionism





2. Dynamism (Dynamic Systems)

Cognition as a whole mind, body, and environment process.

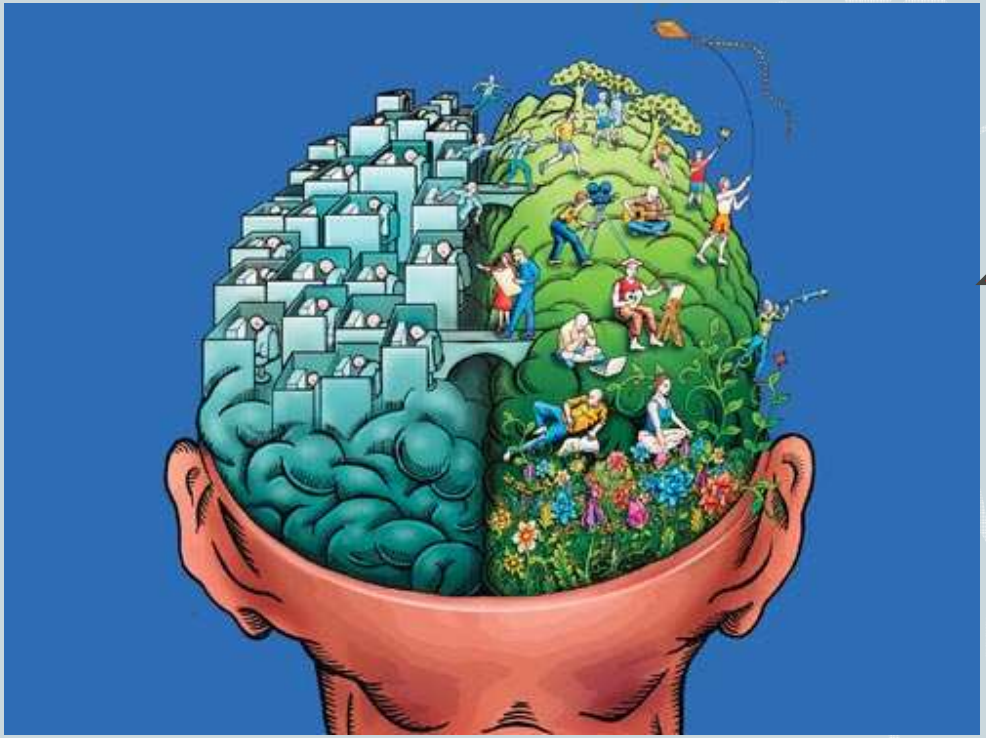
Question:

But then ***what*** *is it* that is thinking?

One last thought for next week…

Not only should we be careful about reason vs. emotional brain bias, but R vs. L brain bias too.

Positive Emotions



Negative Emotions

Happiness is more complicated than we think and is a whole brain activity.

HW Week #3
1 to 2 typed pages, double spaced.

After completing the assigned readings reflect on the following questions:

1. From your reading of the Stanford paper, what does it imply about what happiness is? Is it just "feeling good"?

2. Hanson has a particular approach to happiness. How is the Stanford paper's "definition" of happiness similar and different than the one implicitly written about by Hanson?

3. This week, keep a nightly journal and write down one to three moments in your day when you felt happy. Then at the end of the week, reflect on your experience of keeping this journal and write about your experience.

Functions of the Prefrontal Cortex

- Regulation of body systems
- Attuning to others
- Balancing emotions
- Modulating fear
- Responding flexibly
- Exhibiting insight and empathy
- Paying attention to the body's wisdom
- Morality

Embodied Perception & Thinking

- Our “understanding” of the world and the scenarios we find ourselves in are influenced by our emotions.
- This can be good and bad.
- To make use of the good, be aware of intuitive information, but take responsibility for the feelings you have and the resulting behavior.
- To limit the bad, exercise the prefrontal cortex to make conscious responses.
- Be an active participant in your experience of the world. Train yourself in ways to balance the negativity bias.

The Power of Conscious Self-awareness

- Attention is like a spotlight, illuminating what it rests upon.
- Because neuroplasticity is heightened for what's in the field of focused awareness, attention is also like a vacuum cleaner, sucking its contents into the brain.
- Directing attention skillfully is therefore a fundamental way to shape the brain - and one's life over time.

The education of attention
would be an education par excellence.
William James